We claim:

1. An electrolyte composition comprising ionic liquid including dicyanoamide anions as anions.

2. The electrolyte composition according to claim 1, wherein the ionic liquid comprises cations having quaternized nitrogen atom.

3. The electrolyte composition according to claim 1 comprising halogen-based redox pair.

4. The electrolyte composition according to claim 1 as an electrolyte of a photoelectric conversion element.

5. A photoelectric conversion element comprising the electrolyte composition according to claim 1 as an electrolyte.

6. The photoelectric conversion element according to claim 5 being a dye-sensitized solar cell.

7. The electrolyte composition according to claim 2 wherein the cations having quaternized nitrogen atom include quaternary ammonium, or cations of a nitrogen-containing heterocyclic compound.

8. The electrolyte composition according to claim 1 wherein the ionic liquid

includes 1-ethyl-3-methylimidazolium dicyanamide, N-butylpyridinium dicyanamide, N-ethyl-N-methyl pyridinium dicyanamide, N-propyl-N-methyl pyridinium dicyanamide, N-butyl-N-methyl pyridinium dicyanamide, N-hexyl-N-methyl pyridinium dicyanamide, N-pentyl-N, N, N-triethyl ammonium dicyanamide, N-hexyl-N, N, N-triethyl ammonium dicyanamide, and N-pentyl-N, N, N-tributyl ammonium dicyanamide.

9. The electrolyte composition according to claim 8 wherein the ionic liquid is selected from the group consisting of 1-ethyl-3-methylimidazolium dicyanamide and N-butylpyridinium dicyanamide.

10. The electrolyte composition according to claim 3 wherein the halogen-based redox pair includes halide ions and polyhalide ions.

11. The electrolyte composition according to claim 10 wherein the halide ions are selected from the group consisting of iodide ions (I^-), bromide ions (Br^-), and chloride ions (Cl^-).

12. The electrolyte composition according to claim 10 wherein the polyhalide ions are selected from the group consisting of Br_3^-, I_3^-, I_5^-, I_7^-, Cl_2I^-, ClI_2^-, Br_2I^-, and BrI_2^-.

13. The electrolyte composition according to claim 3 wherein the halogen-based redox pair includes one which is obtained by mixing iodine / iodide ions or bromine / bromide ions.

14. The electrolyte composition according to claim 3 wherein the halogen-based

redox pair is formed reacting halide ions with halogen molecules.

15. The electrolyte composition according to claim 1 further comprising a gelator.

16. The electrolyte composition according to claim 1 further comprising additives which include a organic nitrogen compound, a lithium salt, a sodium salt, a magnesium salt, an iodide salt, a thiocyanate salt, and water.

17. A dye-sensitized solar cell comprising a transparent electrode substrate, a working electrode having an oxide semiconductive porous film formed on the transparent electrode substrate which is made of oxide semiconductive fine particles and having a photo-sensitizing dye absorbed thereon, and a counter electrode provided opposing the working electrode, and an electrolyte layer comprising the electrolyte composition according to claim 1 which is provided between the working electrode and the counter electrode.

18. The dye-sensitized solar cell according to claim 17 wherein the transparent electrode substrate comprises a conductive layer made of a conductive material on a transparent substrate.

19. The dye-sensitized solar cell according to claim 18 wherein the transparent substrate includes glass, a transparent plastic substrate, and a polished plate of a ceramic.

20. The dye-sensitized solar cell according to claim 18 wherein the conductive layer includes a transparent oxide semiconductor selected from the group consisting of

tin-doped indium oxide (ITO), tin oxide (SnO_2), fluorine-doped tin oxide (FTO), and mixtures thereof.

21. The dye-sensitized solar cell according to claim 18 wherein the conductive layer has a thickness of between about 0.05 μm and 2.0 μm.

22. The dye-sensitized solar cell according to claim 17 wherein the oxide semiconductor porous film is a porous thin layer with a thickness between about 0.5 and 50 μm containing as a main component oxide semiconductor fine particles which include titanium oxide (TiO_2), tin oxide (SnO_2), tungsten oxide (WO_3), zinc oxide (ZnO), niobium oxide (Nb_2O_5), and mixtures thereof, where said oxide semiconductor fine particles have an average particle diameter between 1 nm to 1000 nm.

23. The dye-sensitized solar cell according to claim 17 measuring photoelectric conversion efficiency greater than 4.5%.